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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/760,606	01/16/2004	Oleg V. Kozyuk	24961-92	9948

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BENESCH, FRIEDLANDER, COPLAN & ARONOFF LLP  
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CLEVELAND, OH 44114

EXAMINER
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RAMDHIANE, BOBBY

ART UNIT	PAPER NUMBER
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1797

MAIL DATE	DELIVERY MODE
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11/14/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/760,606

**Applicant(s)**

KOZYUK, OLEG V.

**Examiner**

BOBBY RAMDHANIE

**Art Unit**

1797

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 October 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 12, 14, 17 and 18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12, 14, 17 and 18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Inventor's Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

### ***Response to Arguments***

2. Applicant's arguments, see Remarks, filed 10/29/2008, with respect to the rejections under Ficklinger et al towards Claims 12,14, 17, & 18 have been fully considered and are persuasive. The rejections of 102 have been withdrawn.

Applicant's arguments, see Remarks, filed 10/29/2008, with respect to the rejection(s) of claim(s) 12, 14, 17, & 18 under 102 to Kahl, have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Kahl.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. Claims 12, 14, 17, & 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kahl.
6. Applicants claims are toward a device and method.
7. Regarding Claims 12, 14, 17, & 18, Kahl discloses the device for creating hydrodynamic cavitation in fluids comprising: A). A flow-through channel configured to permit a hydrodynamic liquid to flow therethrough (See Figure 1), the flow-through channel having an inlet and an outlet (See Figure 1 Item 6 and Item 5); a cavitation chamber situated within the flow-through channel between the inlet and the outlet, the cavitation chamber defined by at least one wall and an exit orifice wherein: the wall includes a first orifice configured to permit the introduction of a first liquid stream into the chamber and an opposing second orifice configured to permit the introduction of a second liquid stream into the chamber (See Figure 1 area where Item 4 is labeled) the first and second orifices are generally aligned with each other to permit penetration of the first liquid stream into the second liquid stream (See Column 2 lines 46-58 & Column 4 lines 26-31) and the exit orifice is in communication with the outlet (See Figure 1); a restriction wall in physical communication with the wall and the flow-through channel to prevent the hydrodynamic liquid from exiting the flow-through channel before entering the first and second orifices (See Figure 1 Items 2 or 3). Kahl does not disclose that the first orifice has a diameter sufficiently smaller than the second orifice – on the same wall. Kahl does however disclose multiple chambers connected in series, where the orifice size on one wall is smaller than the orifices of the other wall (See Figure 2 &

Column 4 lines 26-31). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the size of the two orifices on one wall where the first orifice has a diameter sufficiently smaller than the second orifice to obtain a desired dispersion of the aqueous coating dispersion.

Additional Disclosures Included: Claim 14: The device of claim 12, wherein the wall includes third and fourth opposing orifices that are generally aligned with each other and have different diameters (See Figure 2 & Column 2 lines 46-58 & Column 4 lines 26-31); Claim 17: A method of creating hydrodynamic cavitation in fluids, the method comprising the steps of: A). Passing a hydrodynamic liquid through a flow-through channel having at least one wall (See Figure 2); B). Introducing a first liquid stream through a first orifice in the wall to create a first liquid jet; introducing a second liquid stream through a second opposing orifice in the wall to create a second liquid jet (See Figure 2 Item 4) that is larger in diameter than the first liquid jet interacts with (See Column 2 lines 46-58 & Column 4 lines 26-31); and C). Creating a high shear intensity vortex contact layer when the first liquid jet interacts with and penetrates the second liquid jet thereby creating hydrodynamic cavitation (See Figure 2, this is essential to the function of the cavitation chamber as shown by the arrows flowing through the wall labeled as 2 & 3); Claim 18: The method of claim 17, further comprising the step of creating and collapsing cavitation caverns and bubbles in the high shear intensity vortex contact layer (See Figure 2; this is essential to the method being claimed because the creation and collapsing of caverns and bubbles are made and destroyed on a continual basis in the high intensity vortex contact layer).

***Telephonic Inquiries***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BOBBY RAMDHANIE whose telephone number is (571)270-3240. The examiner can normally be reached on Mon-Fri 8-5 (Alt Fri off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Griffin can be reached on 571-272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/B. R./

/Walter D. Griffin/  
Supervisory Patent Examiner, Art Unit 1797